

Harmonizing the information management infrastructure for biodiversity-related treaties

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Introduction

Many nations have confirmed their commitment to the principles of conservation and sustainable use of biodiversity by ratifying the five global biodiversity-related treaties, and have similarly adopted international programmes and ratified treaties relating to broader environmental issues.

In order to effectively implement each of these international agreements and programmes, nations need to collect, manage and use information. This is necessary in order to:

- characterise and prioritise action to be taken
- identify appropriate success indicators
- monitor the actions taken and their effects
- report on implementation at national and international levels

The various treaty secretariats themselves also have a strong interest in efficient management of information, and at least a moral obligation to support contracting parties through:

- encouraging development of good information management practice
- facilitating integration and/or sharing information
- requesting only necessary information from parties
- using efficiently any information to which they have access

Submissions and reports from parties constitute much of the information that secretariats manage, and they have an obligation to be as efficient and responsive as possible in using this information. Its application should facilitate national activities and be compatible with the approaches of associated agencies such as GEF, UNDP, UNEP and the World Bank.

However, although steps are being taken to rectify the situation, it is generally acknowledged that the treaty secretariats are not yet working efficiently enough in collecting, managing or using information themselves, nor are they working together efficiently to share information and experience. This paper describes efforts underway and planned to rectify this situation, and also proposes some areas where future effort might be encouraged.

Feasibility study on harmonizing information management

Early on in the development of the programme of work of the Convention on Biological Diversity, the Conference of the Parties, in Decision II/13:

"Requests the Executive Secretary to co-ordinate with the Secretariats of relevant biodiversity-related conventions, with a view to (a) facilitating exchange of information and experience; (b) exploring the possibility of recommending procedures for harmonising, to the extent desirable and practicable, the reporting requirements of Parties....."

Responding to the interest and momentum evident in this decision, the five global biodiversity-related treaty secretariats and UNEP commissioned the World Conservation Monitoring Centre to undertake a *Feasibility Study* to identify opportunities for harmonising information management between the treaties. The five treaties are:

- Convention on Biological Diversity
- Convention on Migratory Species
- Convention on Trade in Endangered Species
- Convention on Wetlands
- World Heritage Convention

The *Feasibility Study* considered approaches towards development of a harmonised information management infrastructure for the treaties within their existing defined mandates. Its purpose was to consider how the secretariats could improve effectiveness and efficiency in the gathering, handling, disseminating and sharing of information.

Recognising the close connections with initiatives to explore synergies between the Rio treaties, the secretariats of the Framework Convention on Climate Change and the Convention to Combat Desertification were invited to participate as observers at the workshop where options were reviewed.

While conceived as an essential prerequisite for country-focused capacity building and the development of harmonised national reporting and information management activities, this study did not extend to considering country-level activities, which would need to be dealt with at a later stage.

Reviewing information requirements

The first step in increasing synergy is an improved understanding of the information requirements of each convention and the linkages between them. Where information is shared, a standard approach to its collection would:

- enable the data to be used easily for more than one convention
- facilitate the production of cross-convention summaries (where there are links)
- serve to encourage greater co-ordination between national agencies/focal points

Information needs implied by the convention articles and decisions As part of the *Feasibility Study*, the articles of each convention together with the decisions and other documents relating to implementation were reviewed and the information requirements documented. This covered not only the information required in national reporting, but all the information required to implement the convention.

While the CBD has broad information requirements, each of the other conventions has a particular focus. CITES and CMS are focused on species while Ramsar and World Heritage are focused on sites. Commonalities would be expected between these pairs, and are indeed apparent. Certain data are unique to one convention, but there are a number of fundamental data sets that are required by more than one convention - some by all five. These information needs are summarised in Table 1.

Information from contracting parties (reporting requirements) The primary source of information for each secretariat is the convention's contracting parties - each convention requires some form of reporting. In addition to periodic reports, parties provide information on initial accession to certain of the treaties, on nomination or designation of sites, and in support of amendments to the treaty articles or annexes in the case of species.

With all reporting regimes, careful attention needs to be given to what is to be achieved and how the content of such reports will enable activities to be assessed and priorities for the future determined. Reporting guidelines are an important element of such processes and provide a framework to assist parties with their submission. In addition, information received in a standard format will be easier to review and will facilitate the production of a report considering the collective achievements of all contracting parties.

Although the reporting requirements differ between the conventions, some of the information required is common to all. By harmonising the reporting requirements and timing where possible, and encouraging a standard approach to data collection, the conventions may be able to share information more effectively, and at the same time encourage national level co-ordination.

National level co-ordination is needed because information flow is not necessarily simple. The national authorities for a given party may be vested in different government departments for each of the treaties. Thus countries may have up to five different lines of communication with the biodiversity treaties.

Information from other sources Convention secretariats also receive information from NGOs and international agencies. In some cases these are specifically designated supporting or advisory bodies, in other cases the arrangements are more informal. The information that flows by this means is primarily scientific – for instance in support of taxonomies, reviews of species lists, species population statistics, site descriptions.

Information flow between conventions All five convention secretariats meet regularly to discuss issues of common interest. Officials of secretariats routinely attend each others CoPs and other major meetings, and exchange principal documents. At present, there is very little flow of scientific information between the conventions apart from some exchange between Ramsar and WHC, regarding sites common to both conventions.

Secretariats perceive the need for improved inter-convention exchange, and during the *Feasibility Study* a number of examples were given of information known to be held by one which would be of value to others and where there would be benefits of sharing scientific expertise. Information flow is hampered by lack of knowledge about the respective data holdings of the conventions, so improved understanding should lead to a number of benefits.

Information flow from secretariats to parties All of the secretariats are charged to provide assessments of the state of implementation of the convention, and to support parties in implementing the convention. This is achieved in part by synthesising national reports. However, apart from administrative information, relatively little information flows from the secretariats to parties. All of the conventions recognise the need to improve feedback of information to parties, and to find methods to disseminate case studies and information on “best practice” to parties to support implementation of the provisions of the treaties.

Reviewing needs for improved information management capacity

The use of information technology to support information management in the secretariats is variable. CITES and Ramsar both have significant databases, while those of CMS and WHC are more basic. All secretariats have web sites, containing a wealth of information, often in a number of languages. Particularly significant are the search tools developed by both CBD and WHC. However these web sites vary considerably in approach and information content.

Most of the secretariats have in place an information management strategy or other plans to review or enhance information management. In all cases the availability of resources (especially human) limits the ability to implement these plans. The following are key issues that were identified during the *Feasibility Study*.

Limited access to existing documents Reports and submissions from parties as well as scientific reports and summaries from other sources held by the secretariats represent a potentially valuable information resource. In most cases these documents are neither indexed nor in digital form, and thus are difficult to access by the secretariat or contracting parties.

Need for case studies and “lessons-learned” There is a demand from parties for information to assist in implementation of treaty provisions - exemplary strategies and plans, case studies of aspects of implementation, “good practices” and so on.

Need for improved linkages with other conventions There is currently little communication between the information technology officers of the secretariats and little exchange of information management strategies, plans, common problems and experiences.

Limited human resources in IT Human resources needed to effectively utilise modern information technology are limited in each of the five secretariats. In addition secretariats need more experience and broader skills to make effective use of existing IT. Information management has not been a priority of CoPs, and the potential benefits of increased investment have not been well explained or understood.

Use of an external data manager The two secretariats that are the most advanced in information management (Ramsar and CITES) have found that the use of an external data manager is an efficient solution. Using external data managers avoids the need to employ specialised staff such as web designers, programmers, and database managers. The use of external consulting expertise for a one-time project to develop strategies and implement improvements is also an option to build IT capacity within the secretariats.

Difficulty in responding to queries Responding to queries from parties, as well as NGOs, press media, prospective parties, etc., is mainly done on an *ad hoc* basis rather than using automated processes to provide easy access to information. This is in part because official document distribution tends to consume most of the resources available for information analysis and administration.

Options for harmonization

During the *Feasibility Study*, options were identified based on common information needs, constraints and functions. Four principal areas were identified where harmonization would yield effective results:

- harmonisation to improve management of information provided by parties
- harmonisation to improve the management of secretariat “business”
- harmonisation to facilitate parties in implementation and reporting
- harmonisation to improve capacity to assess the effectiveness of implementation

Within each of these areas, broad concepts or visions, as well as short and long term actions, were elaborated, and discussed with the five treaty secretariats. At a workshop in Geneva, three streams of action were agreed as feasible and of strategic value in further harmonized information management for the five biodiversity-related treaties, each of which is discussed further in the next three sections. They were:

- Developing a harmonized convention information resource
- Streamlining national reporting to, and implementation of, conventions
- Developing a “lessons learned” network

Developing a harmonised convention information resource

The aim is to establish an information resource covering all five biodiversity-related treaties based on the reports provided by parties, managed in a structured and harmonised manner to enhance their value. The following benefits are expected:

- Improved access to information contained within reports
- Simplification of standard reports such as overviews on implementation
- Improved feedback to parties on implementation
- Opportunities to develop additional reports based on the available material
- Ability to conduct electronic searches across all reports
- Opportunities to archive documents and retain easy access

Five priority areas of activity are anticipated, each of which is briefly elaborated below. While some of these may seem to be relatively minor developments, they are all necessary stages in increasing access to and use of information.

Harmonise document cover sheets The purpose of the cover sheet is to provide standard information for all documents submitted by contracting parties and generated by the secretariats across all five conventions. It would also serve as the entry for each document into the meta-database (see below).

Adopt a standard thesaurus for keywords and searching The purpose is to adopt a standard terminology so that searching for keywords can be accomplished across the five conventions. An already existing standard should be used if possible, preferably one with a multi-lingual capability.

Harmonise web sites As a means of facilitating use of web sites, it is recommended that, along with convention-specific material, each convention web site has a consistent minimum set of features. Harmonisation should not restrict the creativity or freedom of individual secretariats but recognise the unique aspects of each convention and deliver benefits from the identified minimum common elements.

Develop a meta-database It is recommended that a meta-database be developed primarily to indicate the information that is available and where it is located. The meta-database should initially be implemented on the web site of each of the five convention secretariats, following standard protocols and software. The meta-database would essentially consist of digital versions of the 'cover sheets' available in a searchable form, with additional information on availability of the full document.

Develop an inter-convention web site and search engine The development of an inter-convention web site and search engine is a logical follow-on to harmonised web sites and meta-databases in each of the secretariats. The inter-convention web site would be a single point of entry – in the sense of a gateway. The search engine would enable users to interrogate and retrieve information from the meta-database covering the five conventions.

Streamlining national reporting to conventions

The eventual purpose is to encourage and assist the development of co-ordinated biodiversity information resources at the national level. There are four necessary steps.

Review and clarify reporting requirements of each convention This would build on the analysis in the *Feasibility Study* and result in the identification of well-defined structured 'modules' of information required. The intention is that this would reduce the potential for duplication in reporting, and increase the options for sharing information between conventions.

Prepare an integrated handbook of national reporting This follows from the previous review. Guidelines for each convention would be assembled into a consolidated handbook with a common glossary and terminology. The handbook should particularly suggest how contracting parties could most usefully organise national information systems and collection regimes to facilitate preparing reporting modules to the conventions while contributing to their own national policies, strategies and action plans.

Pilot testing of handbook (proof-of-concept) The handbook would be tested in a number of countries. The results of this pilot would be used to improve and refine the handbook, as well as to define the capacity building requirements at national level for full implementation of integrated reporting.

Capacity building in national biodiversity information banks and related technology Capacity building is not necessarily a harmonisation activity (although the manner in which it is conducted may result in more harmonised approaches to information management). Building capacity at national level to implement the integrated reporting guidelines would however help achieve the desired goal of developing co-ordinated national biodiversity information resources. The envisaged national biodiversity information banks would serve the needs of the national biodiversity strategies and action plans, and would also help nations to report to the conventions.

Developing a lessons-learned network

The objective is to encourage the sharing of experience from case studies, whether positive success stories or examples of what to avoid. There are four main activities.

Select lessons-learned from existing secretariat documents This requires an internal review in each secretariat to select appropriate material from project files and national reports. These would be posted on a special section of the convention web sites. Use of standard terminologies or vocabularies will help to increase access to this information.

Develop prototype lessons-learned web site This would be an *integrated* facility developed as a separate web site or as part of the inter-convention web site and would serve to test the methodology and delivery of information, and to attract input from other agencies beyond the five treaty secretariats.

Establish links to lessons-learned of development agencies, and national lessons-learned web sites Proactive efforts should be made to collect case studies from national and international levels on key themes. Also, from the experience of Ramsar, once a prototype web site is established, national and international agencies are willing to submit additional material and/or provide links to existing sites with case studies and examples of good practice. Guidelines must be developed for acceptance of lessons-learned or links.

Link lessons-learned network to CBD-CHM. This is the fully operational stage. It follows the testing of prototype and adjustment according to experience. The ultimate goal is that the lessons-learned network becomes a useful node in the overall CBD Clearing House Mechanism.

Overall process issues

Achieving harmonization of information management through these proposed projects requires active collaboration between the five participating conventions. To help achieve this, three processes were identified:

- high level harmonisation steering committee

- joint scientific panel
- joint information technology working group

It was acknowledged that there was a need for closer collaboration between the information management and technology staff of the secretariats. The CMS Secretariat hosted a meeting of these staff during 1998, and the process of implementing some of the recommendations of the *Feasibility Study* was begun.

Collaboration on scientific issues is more difficult. A single joint scientific panel would be possible, but there are probably too few issues in common for this to be worthwhile across all five treaties. The existing well-defined CITES standard taxonomies are a useful base that could be expanded to include standardised species lists for Ramsar and CMS. Also, co-ordination between the chairs of the CMS Scientific Council and the CITES Nomenclature Committee would be beneficial.

Actions and decisions requiring co-ordination are:

- adoption of standards (including document types, country names, dates)
- selection/adoption of high-level keyword vocabulary
- minimum content of harmonised web sites
- co-ordination on meta-database design
- input to design of central web site and search engine
- collaboration in the identification of information packets
- design of integrated handbook
- harmonisation of terminology
- selection of proof-of-concept countries
- species lists and taxonomies
- lower-level key-wording vocabulary for lessons-learned

Conclusions of the *Feasibility Study*

The *Feasibility Study* succeeded in identifying specific areas for harmonisation between the five conventions.

There are significant areas where the five conventions need information on the same sectors of biodiversity and there are practical steps that can be taken towards harmonising information management. Most notable areas of commonality are the species information data required by CITES and CMS, and the site-based information needed by Ramsar and WHC. There is considerable scope within these to harmonise information management and the information requirements from national reports to improve efficiency and gain greater benefits from efforts at all levels.

Information flow could be managed and directed to greater effect. This is especially the case from the secretariats to the parties where information disseminated is currently largely administrative but could be extended to include more scientific and analytical information or more sharing of experience. Information flow and co-ordination are impeded by the multiple channels that reflect the diversity of agencies charged with implementation at national level. Greater co-ordination at national level would be beneficial.

The five secretariats share challenges relating to IT and information management. Their responses to these challenges would benefit from improved communication and sharing of experience.

Of the range of options proposed by WCMC some, such as virtual reporting, were seen as impractical, at least in the short-medium term, and so are excluded from the recommended

immediate actions. Options of this type are worthy for reconsideration once the more immediate steps have been taken.

Feasible steps agreed by the secretariats as both pragmatic and of strategic value to improve harmonisation are to:

- develop a harmonised conventions information resource
- streamline reporting to conventions
- develop a lessons-learned network

These steps are now being taken forward through the development of proposals by the secretariats with support from WCMC.

During implementation of the *Feasibility Study*, there was considerable interest from other treaties notably the FCCC and CCD. A broader study embracing these and other treaties would be beneficial and timely.

Beyond the *Feasibility Study*

Most of this paper has dealt with the proposals and steps that are being taken as a result of the *Feasibility Study*, but we wish also to cover two further issues that demonstrate the direction that we believe harmonization of action by international agreement secretariats and international programmes should be leading. In both cases, movements to harmonize action at the international level should be leading to harmonization of approach at the national level. The first example takes an information management approach, while the second takes a particular category of information.

Concept 1: Facilitating reporting by Contracting Parties

Two ideas that were discussed during the *Feasibility Study* fit neatly together in defining a potential future process for national reporting on international conventions that would significantly reduce the burden on Contracting Parties. This is the combination of **Modular Reporting** and **Virtual Reporting**.

The concept of **Modular Reporting** is built on the belief that the information requirement for implementation of the conventions can be defined as a series of discreet information packages or modules, where some modules would be convention-specific, while others would be relevant to more than one convention. Contracting Party reports would be defined as a particular set of modules.

These modules or information packets would have the following characteristics:

- *information packets* would be complementary (non-overlapping) - so that information is provided only once and in one consistent format
- *an information packet* may serve the needs of more than one convention
- *information packets* should be a subset of national biodiversity information management products - part of the input to national planning/policy development
- *information packets* are produced in a cycle which suits national requirements and that is in harmony with the reporting cycles of the conventions

The *information packet* process would be supported by harmonised guidelines, nomenclature, and thesauri, as well as recommended good practices and information management methodologies. This process will ease the reporting burden on parties, while improving the quality, availability and usefulness of information for national purposes. In addition the process can be easily extended to other environmental treaties through the addition of new relevant *information packets*.

The concept of modular reporting is illustrated in Figure 1. Each of three national agencies (A, B and C) provides a number of information modules, and each of three international conventions (i, ii and iii) requires certain modules in its report. Some of the modules are common to all three conventions, some are only used once.

To achieve this approach will require more detailed study of the information requirements of each of the conventions, and the definition of a number of discrete information packets. This would be followed by a pilot project with a number of countries to test the relationship between the defined packets, the arrangement or responsibilities within national organizations, and the type of supporting guidelines and thesauri required.

The next step might be towards **Virtual Reporting**. In this case, instead of submitting information packets to National Focal Points for subsequently submitting to convention secretariats, the information would be placed on *or linked to* a national website on biodiversity or sustainable development. Reporting would become an ongoing process, and the convention secretariat could then download *or link to* the modules it required when it required them.

In other words, virtual reporting would see party countries providing access to their information packets in electronic form continuously updated in a cycle which suits national needs. The convention secretariats would then select and retrieve the most up-to-date information packets as and when required. Figure 2 provides an illustration of virtual reporting, building on the information already presented in Figure 1.

This approach would eliminate duplicate reporting and reduce the effort required for parties to prepare and submit specific reports to the conventions, and more importantly, would serve to encourage integrated national approaches and improved information access and sharing between institutions within party countries. Further, it would facilitate links to other conventions and regional bodies, and improve information sharing between neighbouring countries.

Practical integrated guidelines (jointly between the conventions) are needed for developing, organising and maintaining a national virtual reporting site, to ensure that the selected information can be found and extracted in a consistent manner. This would best be developed through a pilot project building on the modular reporting pilot.

Concept 2: Information on protected areas

Nationally designated protected areas are now part of each nation's strategy for dealing with the conservation and sustainable use of biodiversity and landscape. These areas vary considerably in their objectives, the extent to which they are integrated into the wider landscape, and the effectiveness with which they are managed, but they nonetheless provide powerful evidence of a nation's commitment.

Systematic information on nationally designated protected areas is compiled on a periodic basis by WCMC working in collaboration with the IUCN World Commission on National Parks (WCPA) and others, published as the *United Nations List of Protected Areas* (following a 1962 UN Resolution).

However the response to requests for information can be poor, and requests are often not given the level of priority that might be expected for such an internationally recognised process. This leads to significant variability in the quality of information provided. At the same time, insufficient resourcing often means that the information that is included is not checked as rigorously as it could be. These problems inevitably lead to a number of inaccuracies in the resulting products.

Meanwhile three of the global biodiversity-related treaties have direct interests in data on protected areas. The World Heritage and Ramsar Conventions are both concerned with protection of specific sites, and Article 8(a) of the Convention on Biological Diversity requires each Contracting Party to “*establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity*”.

In addition, at least 11 other international agreements and programmes recognise or designate specific protected areas. These include: the Barcelona, Helsinki, Bern, Cartagena and Antarctic conventions, UNESCO-MAB Biosphere Reserve programme, Council of Europe Biogenetic Reserves and European Diploma sites, ASEAN Heritage sites, and the EC Birds and Habitats Directives.

Given the push to harmonize activities relating to international agreements, the time is right to review and restructure the *UN List* and focus attention on its importance as a unifying thread in reporting on several international agreements and programmes. The content might include:

- information on nationally designated areas
- information on internationally designated and recognised areas
- comparative information on coverage of international sites
- analysis of coverage and effectiveness

If the UN List was clearly seen as an international product serving the needs of a wide range of agreements and programmes, it is anticipated that the process of collecting reliable and complete information would be significantly improved. In order to achieve this, WCMC and WCPA anticipate talking with each of the relevant secretariats during the second half of 1999, with a view to implementing a collaborative programme of work during 2000.

Table 1: Summary of main information requirements

Information	CBD	CITES	CMS	Ramsar	WHC
ECOSYSTEMS					
Ecosystems and habitats					
ecosystems	✓				
habitat types	✓			✓	✓
traditional use	✓				
SPECIES					
Classification, names and identification					
higher taxonomy	✓	✓	✓		
scientific name	✓	✓	✓	✓	✓
common names	✓	✓	✓		
identification materials		✓			
Status					
conservation status	✓	✓	✓	✓	✓
protection status (national and international)	✓	✓	✓		
Ecology					
range and distribution	✓	✓	✓	✓	✓
population data (size and trends)	✓	✓	✓	✓	✓
habitat requirements/availability	✓	✓	✓	✓	✓
migration routes	✓		✓	✓	
In situ and management activities					
legislation	✓	✓	✓		
in situ conservation and management activities	✓	✓	✓		
Threats					
threats (direct, habitat destruction, indirect, etc)	✓	✓	✓		✓
illegal trade		✓			
invasive/exotic species	✓		✓		
Use					
use of species (medicinal, agricultural, economic etc)	✓	✓		✓	
traditional knowledge	✓	✓			
sustainable use (including levels and effect of trade)	✓	✓			
number, quantity and type of specimens being traded		✓			
source/destination of specimens and permits details		✓			
trade in wetland products				✓	
waterfowl hunting statistics				✓	
GENES					
Genes and genomes					
social, scientific or economic importance	✓				
legislative, administrative and policy measures	✓				

SITES

Site details

geographic location	✓	✓	✓	✓
site description	✓		✓	✓
boundaries and map			✓	✓

Ecology of site

physical features	✓		✓	✓
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In situ and management activities

legislation	✓		✓	✓
conservation measures and management of site	✓		✓	✓

Threats

threats	✓		✓	✓
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Use

land use	✓		✓	
hydrological values			✓	
social and cultural values	✓		✓	✓
land tenure/ownership	✓		✓	✓
economic value	✓		✓	
role of site to local communities	✓		✓	✓

Table 2: Summary of reporting requirements

Description	Frequency/Timing	Reference
CBD		
Measures countries have taken to implement the provisions of the convention. Timing and content of reports to be decided by CoP.	to be decided by CoP	Article 26
Report on the implementation of Article 6 General Issues. General measures for conservation and sustainable use.	CoP4 (May 1998)	Decision II/17
CITES		
Annual report containing a summary of permits and trade in species included in Appendices I, II and III of the Convention	Annual; by 31 st October of the following year	Article VIII and Notif. No. 788
Biennial report on legislative, regulatory and administrative measures taken to enforce the provisions of the Convention	Biennial; no set rule or recommendation about timing, although the first report of a Party is expected to be submitted two years after the entry into force of the Convention and subsequent reports to be submitted every 2 years.	Article VIII
CMS		
Parties to provide the Secretariat with details of the migratory species listed in Appendices I and II they consider themselves to be Range States.	On-going	Article VI
Initial comprehensive report by parties on accession to the convention	Upon signature	Article VI and Res. 4.1
Updating report by parties	Each CoP; next CoP in 1999	Article VI and Res. 4.1
RAMSAR		
Completed Ramsar datasheet should be submitted to Bureau upon designation of site	Upon designation of each site. Updates every 6 years.	Article 2, Rec. 4.7 and Res. 5.3
Change in ecological character of a site (Montreux Record)	As necessary	Res. 5.4
Report for CoP 7	to Bureau by 1/9/1998; next CoP May, 1999	Notif. 1998/1
WORLD HERITAGE		
Every Party shall submit to the World Heritage Committee an inventory of property forming part of the cultural and natural heritage.	next meeting of the World Heritage Committee, Dec. 1998	Article 11-12 and Operational Guidelines
Parties shall in the reports they submit to the General Conference of UNESCO on dates and in a manner to be determined by it, give information on the legislative and administrative provisions which they have adopted and other action which they have taken for the application of this Convention		Article 29 and Operational Guidelines

Figure 1 – Modular reporting

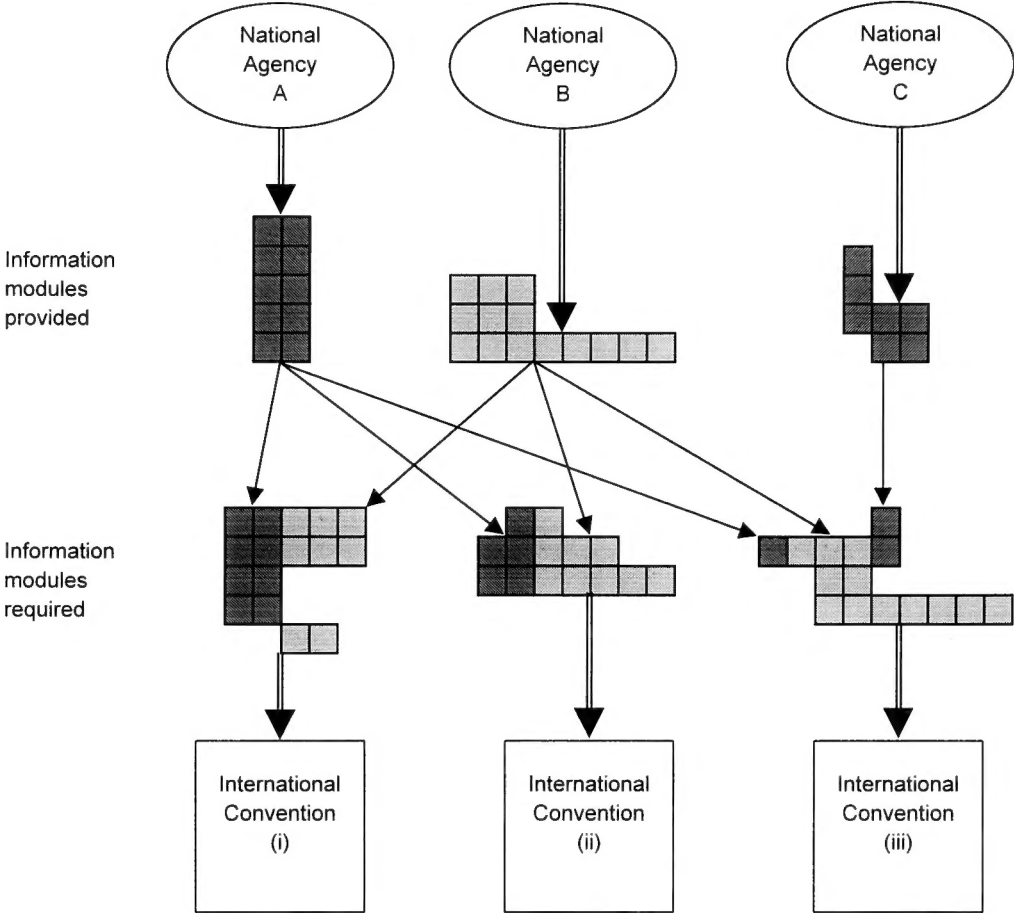


Figure 2 – Virtual reporting

